Depressie bij verzorgingshuisbewoners

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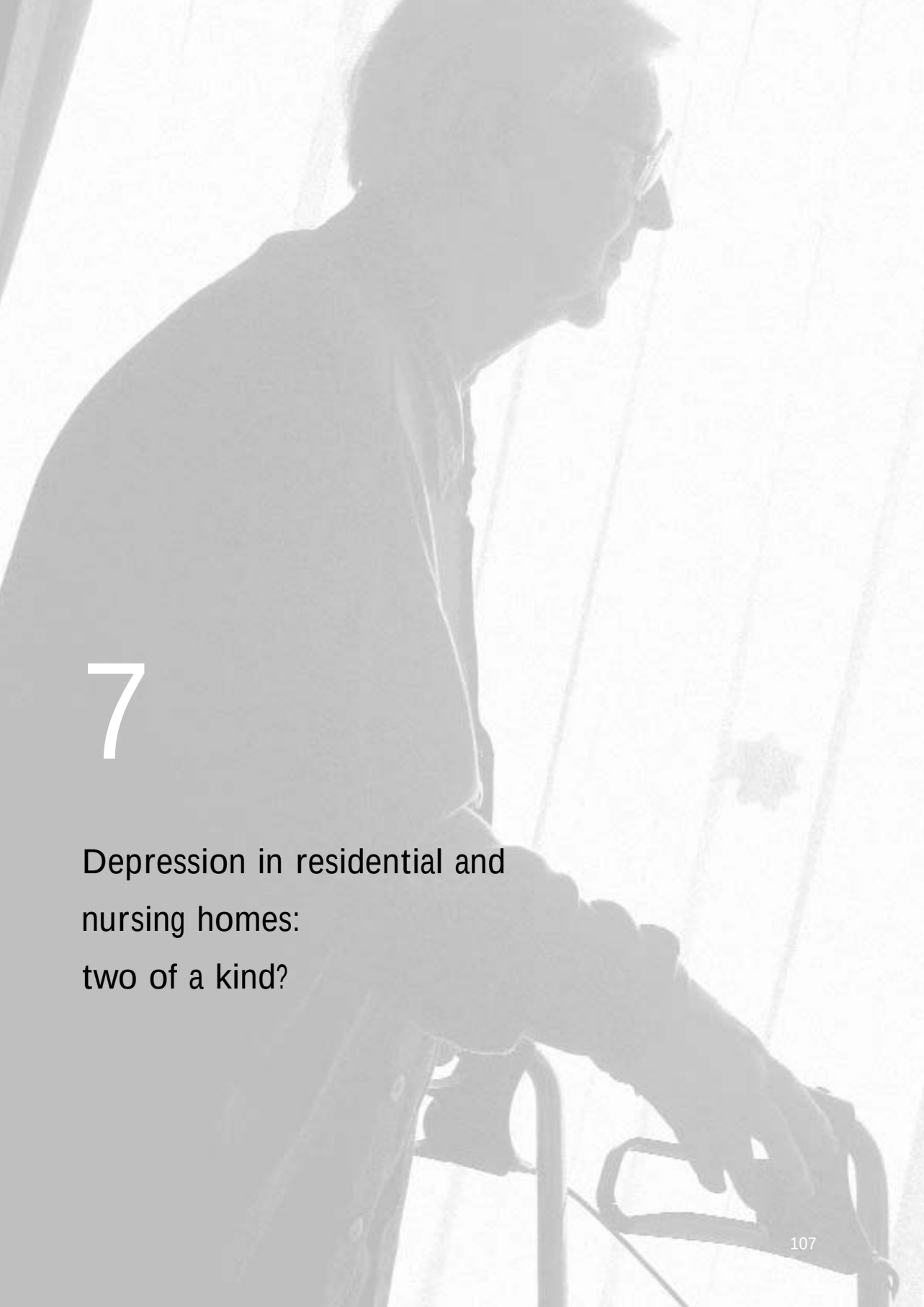

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Depression in residential and nursing homes: two of a kind?

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Introduction

Studies into depression in Long Term Care Facilities (LTCF) are important because depression is very common among institutionalized elderly and has been acknowledged to affect well-being, daily functioning, and mortality negatively (Beekman et al. 1999; Gurland 1992; Ormel et al. 1998; Parmelee et al. 1992). Moreover, in contrast to most chronic or progressive physical diseases from which the residents of LTCF suffer, depression mostly is a treatable disorder (Katz et al. 1990; Mossey et al. 1996; Gill & Hatcher 2002). Therefore, adequate management of depression may substantially contribute to the quality of life of this vulnerable population.

The prevalence of depression in elderly in LTCF is found to be higher than in elderly living in the community (Ames 1993). However, with regard to the level of social and medical care, a difference can be made between residential homes and nursing homes, both being LTCF. Several earlier studies into depression in LTCF did not distinguish between different types of care, thereby complicating comparison of the prevalences that have been found (Ames 1993; Blazer 1994; Parmelee et al. 1989). Nevertheless, the overall picture that emerges, is that depressive symptoms are more common in nursing homes than in residential homes. The results of two recent Dutch studies revealed as well that the prevalence of both depressive symptoms and depressive disorders are substantially lower in elderly living in residential homes (depressive symptoms: 12.9%; major depression: 4.1%) than in those staying in nursing homes (respectively 44.3% and 14.1%) (Eisses et al. 2002; Jongenelis et al. 2004). In residential care, the prevalence of depressive symptoms according to a screening instrument was found to be comparable to the prevalence in the eldest elderly (85 years or older) mainly still living independently (Stek et al. 2004).

Differences in resident-related characteristics, for example gender, educational background, religious affiliation, and functional disability may partly account for the differences in prevalence between residential and nursing homes. Furthermore, non-resident related, but rather environmental factors may influence depression rates, for example the area where the homes are sited. Previous studies showed that depression rates are generally lower in rural areas, compared to more urbanized areas. This might be due to a different lifestyle, closer social networks, more social support, and less negative life events in rural regions (Brown & Prudo 1981).

Moreover, another environmental factor that may influence depression rates is the

nature of the setting. The character of the institution refers for instance to the level of autonomy, the ease to make contacts outside or even in the house, and the quantity and quality of care.

In the Netherlands, residential homes offer one-room apartments, to be furnished by the residents themselves, whereas nursing homes offer rooms for one to six persons, furnished by the institution with no or very limited room for personal furniture and belongings. Consequently, nursing home residents have less privacy and may have less possibility to express their own identity, compared to residential-homes residents.

Furthermore, deprivation of social contacts, and hence loneliness, in the nursing home setting may be higher than in the residential homes, due to the fact that many co-residents suffer from aphasia or severe cognitive impairment.

Taken together, the factors that are not directly resident-related may contribute to the higher levels of depression in nursing homes residents. Therefore, the leading question addressed in this study was why the prevalence of depressive symptoms in residential homes is considerably lower compared to nursing homes. More specifically, this study examined whether the type of institution (nursing *vs* residential homes) affects the level of depressive symptoms in residents, when the effects of established, resident-related risk factors, as well as urbanisation level of the location have been accounted for.

Method

Subjects & sampling

The data used in this study are from the Amsterdam Groningen: Elderly and Depression study (AGED). Data have been gathered in structured interviews with elderly in residential homes and somatic departments of nursing homes, between November 1999 and May 2001. In almost all developed countries between 1% and 5% of the population aged over 65 resides in LTCF (Ribbe et al. 1997).

In the Netherlands, residential homes provide daily care and, if needed, uncomplicated medical care to infirm elderly above 65 (5% of all 65+ in the Netherlands).

Elderly in Dutch residential homes are averaged 85 years old, predominantly widowed and are not able anymore to live independently due to functional and/or social impairments. Besides, residents may join social activities, organized in the homes. The average length of stay in the homes is 4.5 years.

Nursing homes provide care for people with more severe physical disability, cognitive impairment, and additional complex medical and care problems. Elderly in Dutch nursing homes on somatic wards are averaged 77.5 years old and also predominantly widowed. The average length of stay in the homes is 2.6 years.

Twelve nursing homes in the provinces North and South Holland and eleven residential homes in the province of Drenthe were selected to participate in this study. Excluded were homes involved in major reorganizations or refurbishing, because of possible influence on the mood of the respondents. Excluded were residents who visited day care because of their severe cognitive problems. The exclusion criteria were: age below 55, severe deafness, severe aphasic problems, and severe cognitive functioning based on scores lower than 15 on the cognitive screening instrument the Mini-Mental State Examination (MMSE) (Folstein et al. 1975). Informed consent was obtained from all respondents. The Medical Ethics Committee of the VU Medical Center approved the study. All measurements were administered in face-to-face interviews, carried out by trained psychologists, a nursing home physician, and registered nursing staff.

Measurements

Depressive symptoms (dependent variable)

Depressive symptoms were measured by means of the Geriatric Depression Scale (GDS), a 30-item questionnaire with a yes/no response format, specifically developed for the elderly. The instrument has been found to be reliable and valid in multiple settings and has also been recommended for use in this population (Lesher & Whelihan 1986; Gerety et al. 1994). In accordance with the original cut-off point, in this study a score of 10/11 was considered to be indicative of clinically relevant depression (Yesavage et al. 1982).

Resident-related characteristics

Socio-demographic variables

The following details were recorded: age, sex, marital status (never married or

married *vs* widowed or divorced), level of education (≤ 6 years, or > 6 years), and length of stay in 4 categories (see Table 1).

Table 1 *Sample characteristics divided in residential and nursing homes in The Netherlands*

Characteristic		Full sample		
		N	Mean (sd; range) / Percentage	
Age		799	82.76	(7.91;55-102)
Sex	Female	576	72.1%	
Marital status	Widowhood[a]	592	74.1%	
	Married	207	25.9%	
Education	≤ 6 years	466	58.3%	
	> 6 years	331	41.4%	
Length of stay in home	1-6 months	136	17.2%	
	6-12 months	128	16.2%	
	1-5 years	375	47.3%	
	> 5 years	153	19.3%	
GDS		799	7.78	(5.82; 0-29)
Cognitive impairment (MMSE)		799	22.72	(3.91; 15-30)
Functional impairment (GARS)		777	28.31	(9.67; 11-44)
Chronic medical diseases (max 1 in each category)		486	3.66	(4.62; 0-9)
Blind or visual impairment	Yes	130	16.4%	
Hearing impairment	Yes	84	10.6%	
Pain		788	1.34	(1.58; 0-5)
Social support (SSL-12)		773	26.05	(5.94; 12-47)
Loneliness		782	3.89	(2.95;0-11)
Religious affiliation	Not religious	317	39.7%	
Perceived adequacy of care		747	1.05	(1.31; 0-5)
	Discontent	213	23.3%	
	Not content, not discontent	174	28.5%	
	Content	360	48.2%	

[a] *'Widowhood' includes 'never married' and 'divorced'*

Institution					
Residential homes			**Nursing homes**		
N	Mean (sd; range) / Percentage		N	Mean (sd; range) / Percentage	
449	85.38	(6.52; 66-102)	350	79.4	(8.26; 55-99)
335	74.6%		241	68.9%	
327			265		
122			85		
320	71.6%		146	41.7%	
127	28.4%		204	58.3%	
63	14.3%		73	20.9%	
60	13.6%		68	19.4%	
204	46.2%		171	48.9%	
115	26.0%		38	10.9%	
449	5.75	(4.30; 0-25)	350	10.38	(6.45; 0-29)
449	23.35	(3.85; 15-30)	350	21.91	(3.84; 15-30)
438	22.71	(7.57; 11-43)	339	35.55	(6.90; 11-44)
186	3.76	(1.60; 1-11)	300	3.60	(1.64; 0-16)
58	13.0%		72	20.7%	
54	12.1%		30	8.7%	
438	1.27	(1.63; 0-5)	350	1.43	(1.51; 0-5)
432	26.33	(5.64;13-43.64)	341	25.70	(6.28; 1-47)
439	3.50	(2.70; 0-11)	343	4.39	(3.17; 0-11)
160	35.6%		157	44.9%	
413	0.50	(0.84; 0-4)	334	1.72	(1.47; 0-5)

Physical health variables

- *Cognitive impairment:* he Mini-Mental State Examination (MMSE) assessed cognitive impairment. Only scores above 14 were taken into account, because of the validity of the GDS scores at that cut-off score (Folstein et al. 1975; McGivney et al. 1994).
- *Functional impairment* in activities of daily living, as measured with the Groningen Activity Restriction Scale (GARS) (Kempen & Suurmeijer 1990; Suurmeijer & Kempen 1990). The GARS assesses physical restrictions in basic activities of daily living.
- Presence of 13 categories of *chronic physical diseases*, such as cardiovascular as assessed by the GPs of the elderly in residential homes, and by the nursing homes physicians. The categories were based on those used in the Dutch registration system (SIVIS)(Prismant 2001).
- *Incontinence*: incontinent or use of a catheter, vs not so.
- *Visual problems*, divided into two main categories: blind or very poor eyesight (1), vs not so (0).
- *Hearing impairment*, dichotomised in hearing without any difficulty (0) *vs* little, much, or very much difficulty (1).
- *Distress from experienced pain* as measured by five items of the Pain subscale of the Nottingham Health Profile (NHP)(Erdman et al. 1993). The items regarding standing, walking and walking stairs were excluded, because they were judged to be inappropriate for this population since not every subject was able to stand or walk.

Psychosocial characteristics

Social support was measured by the shortened (12 items) Social Support Interactive version, which was designed to be applied to the elderly (Van Eijk et al. 1994; Van Sonderen 1993). Loneliness was measured by the 11-item Loneliness Scale for the elderly (De Jong Gierveld & Van Tilburg 1999). Religious affiliation was indexed by 'being religious' or 'belonging to a church', vs not so, or not anymore. Perceived inadequacy of care was assessed with a short scale consisting of five questions (yes/no) asking residents' opinion about the care they receive from the caregivers.

Institution and area

Institution was defined as residential homes *vs* nursing homes. Area of localization was divided in rural *vs* urban. Statistics Netherlands provided data on the population density.

Since the province of Drenthe (residential homes) is less urbanized than North and South Holland (nursing homes), a relative variable 'area' was created: 'rural' and urban' referring to the density within the two areas.

Statistical analyses

The effect of the type of institution on depressive symptoms in residents was examined with linear regression analyses. The dependent variable in all analyses was the GDS score, which was logtransformed, because of non-normality of the GDS data. In the presentation of the results, the coefficients (B) have been back transformed to refer to the raw GDS scores, by taking the exponent of the coefficient: EXP (B).

Since the data were gathered from respondents within various residential and nursing homes (n=23), we assume that the observations within the homes were dependent (clustered). Therefore, multilevel analysis was used to correct for clustering within homes. The data referred to two levels: homes and individual respondents. Following analyses were performed:

1. A multilevel analysis with only 'type of institution' (to be denoted by 'institution' in the sequel) as independent variable (upper row of Table 2).
2. To analyze the additional influence of the variables indicative of the respondent-related characteristics on the effect of institution, each variable was entered separately to the multilevel model that included 'institution'. Thus, every model included two independent variables. The proportional change of the effect (coefficient) of institution, with respect to the unadjusted model, was then estimated (last column of Table 2).
3. Based on the results of the series of 2-predictor models analyses, the variables with the highest influence over the effect of institution on the level of depression were entered step by step into the multilevel model, starting with the characteristic with the highest influence. If a particular variable had no influence over the effect of institution in the multilevel model, it was excluded from the final model. The difference in occurrence of an effect between the separate and joint analyses may occur because of high correlations between independent variables.

All multilevel analyses have been carried out in MLwiN (Rasbash & Woodhouse 1995).

Table 2 *The impact of institution on depressive symptoms and the change in impact after successive adjustment of covariates (N varies between 747 and 799)*

	Variables in the model	EXP [B] of Institution	95% CI	%-change
Unadjusted	Institution	1.69	1.52 - 1.17	
Adding separately (not cumulative)	Gars – ADL	1.33	1.17 - 1.50	-21.3
	Perceived inadequacy of care	1.38	1.24 - 1.53	-18.3
	Loneliness	1.53	1.38 - 1.70	- 9.4
	Age	1.61	1.45 - 1.80	- 4.7
	Urban area	1.62	1.44 - 1.81	- 4.1
	Visual impairment	1.65	1.48 - 1.83	- 2.4
	Pain	1.67	1.51 - 1.86	- 1.2
	Social support	1.67	1.49 - 1.88	- 1.2
	Cognitive functioning	1.68	1.51 - 1.87	-0.06
	Religious affiliation	1.68	1.51 - 1.86	-0.06
	Hearing impairment	1.68	1.48 - 1.83	-0.06
	Marital status	1.69	1.52 - 1.87	0
	Length of stay	1.69	1.52 - 1.88	0
	Female sex	1.69	1.52 - 1.88	0
	Education level	1.69	1.52 - 1.89	0
	Number of chronic physical diseases (max 1 cat)[a]	1.70	1.49 - 1.95	+0.06

Note that all models presented have been corrected for clustering of respondents within homes EXP (B) was reported to refer to raw GDS scores. Logtransformed GDS scores were used in the analyses

[a] *Only data from 186 respondents in residential homes were available*

Results

Sample characteristics

The source population in nursing homes consisted of 1,117 patients. Of these, 58 died before the interview could take place and 46 respondents could not be interviewed because they were suffering from an acute illness, terminal illness or coma. In addition, 217 patients were excluded because of their inability to answer

questions due to severe cognitive dysfunction, and 204 patients were unable to communicate due to severe hearing impairment, language barriers, or because they were aphasic. Two hundred and thirty-five patients were unwilling to participate in this study, and 7 patients were excluded for other reasons. As a result a sample of 350 nursing home patients remained (Jongenelis et al. 2004). Of the residents, 53 lived in a lower urbanized area, whereas 297 lived in higher urbanized areas.

The source population in residential homes consisted of 597 elderly. Of them, 13 were excluded because of their inability to communicate due to severe hearing impairment, or severe illness. In addition, 49 residents were excluded due to insufficient cognitive capacities, based on the MMSE. Finally, 535 resident met the inclusion criteria. Of them, 83 refused full participation, and 3 others could not be contacted. As a result, a sample of 449 respondents in residential homes remained. Of this sample, 275 residents lived in lower areas and 174 in higher urbanized areas.

The combined sample of nursing and residential homes consisted of 799 respondents. Their mean age was 82.8 years (sd: 7.9; range: 55-102). The comparison of respondents' characteristics in residential and nursing homes is presented in Table 1 and it indicates several differences between both populations. Inhabitants of residential homes are on the average older, followed less years of education, are more religiously affiliated, stay already for a longer period in the homes, have less depressive symptoms, function cognitively better, are less lonely, are less functional impaired in their daily life activities, have higher levels of perceived adequacy of care, and are less visually impaired than residents in nursing homes.

The effect of institution on depressive symptoms

1. To examine the effect of institution on depressive symptoms in residents, firstly a separate analysis was carried out. The basic model -including just institution- revealed that indeed type of institution predicted depressive symptoms, when corrected for clustering within homes. The mean GDS score was 69% higher in nursing homes than in residential homes (upper row of Table 2, exp B).
2. The resident-related variables have been added separately to the basic model (see Table 2). Therefore, Table 2 shows how the effect of institution on depressive symptoms was influenced by the added variables. In Table 2, the variables have been arranged in order of the proportional change of the estimated coefficient of the predictor 'institution'.

3. Based on this order, the -multivariate- multilevel model (Table 3) included, beside institution, the variables 'GARS-ADL' (functional impairment), 'perceived inadequacy of care', 'area', and 'age'. Entering more variables could not reduce the effect of institution anymore. Note that the (EXP) B of institution was not significant in the multivariate model.

Table 3 *Multivariate multilevel model of the prediction of depressive symptoms (GDS scores) in respondents of nursing and residential homes (N=743)*

Variables in the model	EXP [B]	95% CI	P-value
Institution	1.10	0.96 - 1.27	0.159
Functional impairment	1.01	1.01 - 1.02	0.000
Perceived inadequacy of care (p.i.c.)			
p.i.c. 1	1.06	0.94 - 1.19	0.317
p.i.c. 2	1.35	1.17 - 1.57	0.000
p.i.c. 3	1.77	1.52 - 2.05	0.000
Urbanicity	1.11	1.00 - 1.23	0.046
Lower age	1.01	1.00 - 1.02	0.003

Discussion

This comparative study into depression in institutions for long-term care shows that elderly in nursing homes are on the average younger, followed longer education, are weaker religiously affiliated, stay for a shorter period in the homes, are more depressed, are more cognitively impaired, are lonelier, are stronger functional impaired in their daily life activities, perceive their care as less adequate, and are more often visual impaired than those in residential homes.

Furthermore, the results reveal that the type of institution does not relate to the number of depressive symptoms in residents, when the effects of established, resident-related risk factors, as well as area have been accounted for. Rather, the higher levels of depressive symptoms in nursing homes should be attributed to higher levels of functional impairment and perceived inadequacy of care, urban living, and lower age. These characteristics also account for the univariate association between depressive symptoms and loneliness, thereby not excluding that loneliness partly mediates their influence on depressive symptoms.

The strength of this study is that both studies in nursing homes and residential homes were part of the same project and had exactly the same design. Using the same measurement instruments provided fully comparable data. Another strength of this study is that the data have been corrected for dependency of respondents within homes, in multilevel analyses.

The weakness of this study refers to the geographical design; unfortunately, all residential homes were sited in one area (province of Drenthe) and the nursing homes in another (North and South Holland). Consequently, the nursing homes were all sited in a stronger urbanized area than the residential homes. Hence, full adjustment for area was not possible.

The higher levels of functional impairment and the lower age of the residents found in the nursing homes under study are inherent to the Dutch division in institutions and difficult to change. The independent association of urbanisation with depressive symptoms is difficult to interpret. It might be due to closer social networks, more social support, and less negative life events in rural regions (Brown & Prudo 1981). The perceived inadequacy of care may be responsive to positive changes. Although we did not objectively measure the care offered, the perceived inadequacy may be the resultant outcome of (i) more or less stable resident-related factors (like loneliness), (ii) temporary resident-related factors (like depression), (iii) the care offered, and (iv) the perception of that care. The care offered depends on various aspects: the quality of care staff, surrounding, for example the living accommodation, and contact time, partly depending on work load. The recent 'pajama days' are illustrative for failing care due to the heavy work load in Dutch nursing homes: care staff leaving residents in their pajamas during daytime. Further research into these factors is warranted in relation to depressive symptoms in residents. Obviously, the lack of care staff, an eminent problem in the western areas of The Netherlands, negatively affects the perceived inadequacy of care, and requires adequate governmental management.

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